

# Dualband MW/LW Strained Layer Superlattice Focal Plane Arrays for Satellite-Based Wildfire Detection, Phase I

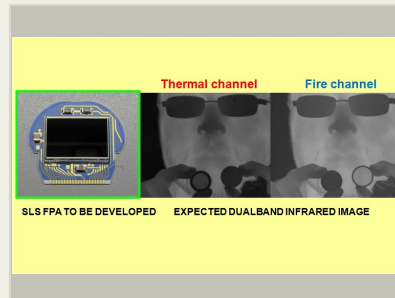
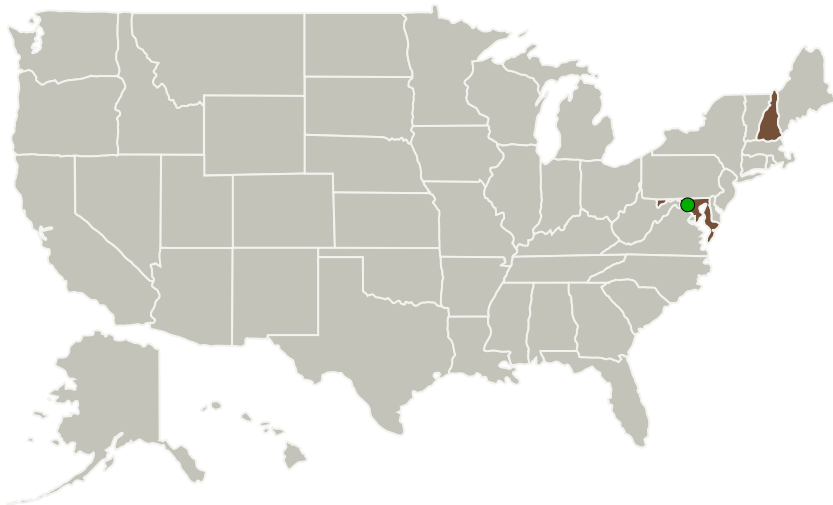
Completed Technology Project (2014 - 2014)



## Project Introduction

Dualband focal plane arrays (FPAs) based on gallium-free Type-II strained layer superlattice (SLS) photodiodes have recently experienced significant advances. We propose to develop a new class of devices capable of producing simultaneous and spatially-registered images in two spectral bands, namely, a fire channel in the 3 to 5 micron window and a thermal channel covering the range of 8 to 12 microns and beyond. Such FPAs are known to be uniquely effective for detecting wildfires either locally from aircraft or globally from satellites in low earth orbit. The performance of SLS detectors now rivals that of mercury cadmium telluride but at a fraction of the cost. Their high quantum efficiency combined with the advantages of two-color imagery and data interpretation will permit the detection of wildfires with much reduced false alarm rates. The same devices will also enhance NASA's capabilities in a host of other satellite and airborne Earth-observing missions devoted to long-term global observations of the land surface, biosphere, atmosphere, and oceans. They will also be instrumental in supporting future Space Science missions aimed at studying distant galaxies and discovering potentially habitable planets orbiting other stars.

## Primary U.S. Work Locations and Key Partners



Dualband MW/LW Strained Layer Superlattice Focal Plane Arrays For Satellite-Based Wildfire Detection Project Image

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Organizations Performing Work	Role	Type	Location
QmagiQ, LLC	Lead Organization	Industry	Nashua, New Hampshire
● Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	New Hampshire

## Project Transitions

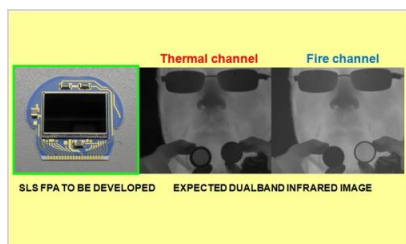
▶ **June 2014:** Project Start

✓ **December 2014:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140572>)

## Images



## Project Image

Dualband MW/LW Strained Layer Superlattice Focal Plane Arrays For Satellite-Based Wildfire Detection Project Image  
(<https://techport.nasa.gov/image/129455>)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Organization:

QmagiQ, LLC

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

## Program Director:

Jason L Kessler

## Program Manager:

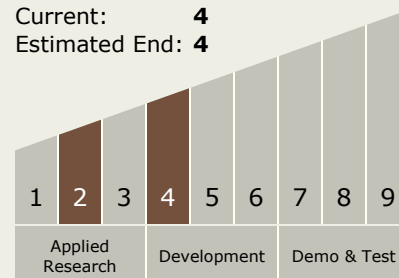
Carlos Torrez

## Principal Investigator:

Mani Sundaram

## Technology Maturity (TRL)

Start: 2  
Current: 4  
Estimated End: 4



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## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.1 Detectors and Focal Planes

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System